Trauma Practice Management Guideline: Blunt Aortic Injury

The Trauma Service Directors' Workgroup is an open forum for the directors of designated trauma services in Washington State to share ideas and concerns regarding the provision of trauma care. The workgroup meets twice a year to encourage communication between services so that they may share information and improve the quality of care that they provide to patients. On occasion, at the request of the Governor's Steering Committee on EMS and Trauma Care, the group discusses the value of specific guidelines for trauma care procedures.

This clinical guideline is distributed by the Washington State Department of Health on behalf of the Governor-Appointed Steering Committee on Emergency Medical Services and Trauma Care to assist trauma care services with the development of their trauma patient care guidelines. Toward this goal the Trauma Service Directors have categorized the type of guideline, the sponsoring organization, how it was developed, and whether it has been tested or validated. It is hoped that this information will assist the physician in evaluating the content of this guideline and its potential benefits for their practice or any particular patient.

The Department of Health does not mandate the use of this guideline. The Department recognizes the varying resources of different services and that approaches that work for one trauma service may not be suitable for others. The decision to use this guideline in any particular situation always depends on the independent medical judgment of the physician. It is recommended that trauma services and physicians that choose to use this guideline consult with the Department or Eastern Association for the Surgery of Trauma, the original developer of the guideline, on a regular basis for any updates to its content. The Department appreciates receiving any information regarding practitioners' experiences with this guideline. Please direct comments to Mary Rotert RN, (360) 705-6729 or mary.rotert@doh.wa.gov

This is a trauma assessment and management guideline. It was adapted from the Eastern Association for the Surgery of Trauma website. The Trauma Medical Directors Workgroup reviewed the guideline, sought input from trauma care physicians throughout Washington State, and used that input to make changes. The guideline was then endorsed by the Steering Committee, and by the DOH Office of EM/TP. This guideline has not been tested or validated. Further information and the original guideline is available at www.east.org

Practice Management Guideline for Blunt Aortic Injury

Level I Data

There is insufficient evidence to support a standard of care on this topic.

Level II Data

1. The possibility of a blunt aortic injury should be considered in all patients who are involved in significant abrupt deceleration events, such as a motor vehicle collision.
2. The chest x-ray (upright if possible) is a good screening tool for determining the need for further investigation. The hallmark of thoracic aortic injury is an abnormal mediastinum. Abnormalities include (but are not limited to): a widened mediastinum, obscured aortic knob, deviation of the left mainstem bronchus or naso-gastric tube, and opacification of the aorto-pulmonary window.
3. Angiography is a very sensitive, specific, and accurate test for the presence of blunt aortic injury. It is the standard by which most other diagnostic tests are compared. This is best performed at the institution capable of repair.
4. Computed Tomography of the chest is a useful diagnostic tool. Diagnostic reliability can vary greatly based on the sophistication of the scanner, technique of the scan, and the interpretive skills of the radiologist and surgeons involved.

Level III Data

1. The presence of physical findings such as pseudocoarctation or intrascapular murmur should be investigated further. An unequal blood pressure of > 20 mmHg between arms is significant.
2. Trans-esophageal echocardiography is also a sensitive and specific test, but has significant limitations in evaluating aortic arch anatomy. It requires specific training and expertise which may not be as readily available as angiography.
3. Prompt repair of the blunt aortic injury is preferred. Delayed intervention is appropriate when:
    a. the patient has more immediately life-threatening injuries that require intervention such as emergent laparotomy or craniotomy,
    b. the patient is a poor operative candidate,
    c. the patient requires transport to a more appropriate facility.
4. Medical control of blood pressure lessens shear forces on the aortic wall and is advisable.
    a. Short term control with intravenous beta blockers is preferred during evaluation and transport.
        i. Labetolol 0.25-0.5mg/kg q 15 min. (t1/2 5.5 hours).
        ii. Esmolol 0.5mg/kg/min infusion. (t1/2 9 min.).
    b. Long term control of blood pressure may be an alternative to operative repair when comorbid conditions preclude surgery.
5. Repair of the aortic injury is best accomplished at a facility where surgeons experienced in the care of this injury are available.

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